THE STATUS OF *CROMBRUGGHIA LAETUS* (ZELLER, 1847) (LEP.: PTEROPHORIDAE) IN BRITAIN WITH A REVIEW OF KNOWN RECORDS AND NOTES ON ITS SEPARATION FROM *C. DISTANS* (ZELLER, 1847)

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BECAUSE OF the similarity between *Crombrugghia laetus* (Zeller, 1847) and the closely related *C. distans* (Zeller, 1847) the early history of these two species in Britain is closely linked. *C. distans* was first added to the British list by Lord Walsingham, who captured adults near Thetford, Norfolk, in July 1868. Unfortunately, these were referred to as *laetus* by Jordan (1870) when he wrote about the discovery, although this mistake was eventually corrected. It was soon discovered that the summer brood of *distans* is distinctly smaller and paler than the spring brood, and for some years the name *laetus* was used, incorrectly, to describe the summer form of *distans*.

Both species exhibit variation in size, colour and intensity of pattern. *C. distans* from the Breckland district of Norfolk and Suffolk are generally large, dark and clearly marked; the ground colour is reddish-brown, almost chestnut. Those from the dunes and beaches of the south-east are pale and less heavily marked, the ground colour is duller, inclining to grey. The *laetus* that have been taken in this country are usually small, pale and lightly patterned, and resemble the south-east form of *distans* much more than the Breckland form.

Youden (1963), gives an excellent summary of developments up to 1906 when Tutt published his *Natural History of The British Lepidoptera,* Volume 5. In this book, which gives a comprehensive account of the plumes, Tutt published T.A. Chapman's drawings and descriptions of the genitalia of both species and, since the genitalia are quite distinct, the matter was settled. Our native species is *distans* and at that time no specimen of *laetus* had been found in the British Isles. B.P. Beirne (1952), confirms that *laetus* had not been recorded in this country, stating that British specimens examined by Pierce and Metcalfe were found to be a light form of *distans*.

Summary of known British records

The first confirmed discovery of *laetus* was made by G.H. Youden in 1961. His account (Youden, 1963) reads: "At about nine o'clock on the night of 10 September 1961, I netted on some heathy ground near Ashford, Kent, a plume that was flying around the m.v. lamp. On examination it proved to be a female in bred condition, but one that I did not recognise. The night was warm for the time of year with no wind but slight rain at times. The specimen was submitted to Mr M. Shaffer (Br. Mus. (S. Kensington)), who has determined it as *Crombrugghia laetus* Zeller, a species for which there is no previous confirmed occurrence in Britain."

The second specimen was taken by H.N. Michaelis flying over heather and rushes at Hiraethog Moors, Denbighshire on 9 July 1968; the date

coincided with a heavy fall of red dust from the Sahara and reports of many other migrants at that time. Subsequently, a specimen was discovered which had been taken by W. Rait Smith at East Hoathly in Sussex, on 1 August 1928; this is the earliest confirmed British specimen.

Two specimens were taken by P.N. Siddons on a cliff-top at Perranporth, Cornwall on 2 July 1986. A single specimen is reported in Agassiz (1988), but R. Heckford (*pers. comm.*) informs me that in fact there were two.

On 1 October 1990 a female was taken at Portland Bird Observatory by M. Cade. The identity of this specimen was confirmed by Dr J.R. Langmaid.

On 12 October 1995 a male was attracted to P. Davey's m.v. light at Gaunt's Common, east Dorset. The identity of this moth was confirmed by Dr P.H. Sterling who adds that it was taken during a period of considerable migrant activity.

In 1994 and 1995 whilst looking through various collections for plume records I came across four more specimens of *laetus*. In chronological order of capture these are:

A female in good condition but poorly set with the data, Beer (South Devon), August 1928, GW. The collector's initials probably refer to G. Watkinson, as other plumes from Beer in the same collection bear his name.

Two specimens were found in the Scarsdale Brown collection; a male on 3 August 1946, Parley, Dorset (S.C.S. Brown), and another male in very good condition, 3 July 1947, Bournemouth (S.C.S. Brown).

Finally, in December 1995 whilst looking through the collections in the Natural History Museum I found a male specimen caught on 4 August 1947 at Looe, Cornwall, by S.N.A. Jacobs.

Although there is little data to go on, an interesting pattern is beginning to emerge. There appear to have been two waves of immigration of *laetus* in the first half of this century. The first was in 1928 when specimens were caught at East Hoathly, Sussex and Beer in Devon, both specimens being taken in the month of August. The second immigration took place in 1946-7 when two specimens were recorded in Dorset and one in West Cornwall, these records are in July and August. 1947 was an outstanding year for migrants and many contemporary records exist reporting this. Since 1947 only singletons have been recorded but all have been associated with migrant activity. 1961 was the year in which *Utethesia pulchella* L. was recorded in Britain for the first time for many years. The immigration of *pulchella* started in late August and continued until October, coinciding closely with the record of *laetus* from Kent on 10 September. Of the thirty *pulchella* recorded no less than six were from Kent. The 1968 specimen was associated with a fall of red dust from the Sahara, many other migrants were recorded at the same time. Bretherton and Chalmers-Hunt (1987), in their review of immigrant Lepidoptera for 1986 write of ". . . a major influx (of migrants) to the south-west in the last days of June and again in mid-July."

Paul Siddons' record from Perranporth on 2 July 1986 fits in well with this wave of migrants. The Portland record on 1 October 1990 again coincided with migrant activity, on the same night, but in Cornwall, I recorded two *Utethesia pulchella* to m.v. light. In his letter to me Dr P.H. Sterling reports that the 1995 record coincided with a period of considerable migrant activity.

All the records except one are within thirty miles of the south coast of Britain, stretching from Kent to Cornwall. The pattern of records, associated with known migrant activity, confirms that the insect is a migrant rather than a rare resident in this country, although the two specimens found together in Cornwall and the two records from Bournemouth and Parley in 1946 and 1947 may indicate that the species had become locally established for a short time. Immigrant records of the very rare *Utethesia pulchella* coincided with *laetus* in the years 1947, 1961 and 1990 and suggest the possibility of a common origin for both species.

Gielis, 1996, and others give *Andryale integrifolia* (=*sinuata*) L. as the foodplant for *laetus*. In the same work Gielis synonymised *Crombrugghia lantoscanus* (Zeller, 1847) with *laetus*. The foodplant of *lantoscanus* is given as *Hieracium lanatum* Vill. Neither of these plants occurs naturally in Britain. However, it is possible that *laetus* can feed on other members of the Compositae including species which occur in this country.

Identification

Because of the variety shown by both *C. laetus* and *C. distans* it is not possible to identify all specimens with certainty from wing markings alone (Plate B, Figs. 7 & 8). However, in many cases a provisional identification is possible but this should be confirmed by examination of the genitalia. The following points will help with the initial identification.

C. distans is generally larger, around 20mm wingspan, and has a greyish-brown ground colour; *C. laetus* is smaller, about 18mm, and is light ochreous-brown. *C. laetus* has a black spot on the forewing at one third of the wing distance, this spot can be distinct or very weak; in *distans* the spot is absent or very weak. The termen of the posterior lobe of the forewing is angled and faces diagonally backwards, in both species the termen has a generous fringe of greyish hairs becoming pale posteriorly. In *laetus* the anterior half of the fringe has a narrow row of blackish scales; in *distans* the scales are missing and replaced by short whitish hairs. The genitalia of the two species (Figs. 1-9), are quite distinct. In the males the valve of *distans* has a pointed paddle-shaped extension which accounts for about four-tenths of the whole length of the valve; In *laetus* the extension is rounded and only two-tenths of the length of the valve. The tegumen has two long processes, in *distans* the tip is rounded, quite smooth and the anterior side is concave; in *laetus* the tip is square and slightly hooked (Figs. 1 and 2 which show the tegumen twisted to different angles) and the anterior side is convex. In the females the seventh tergite has a plate which extends towards the ostium. In *laetus* the plate is well-developed forming two well-rounded bulges, the

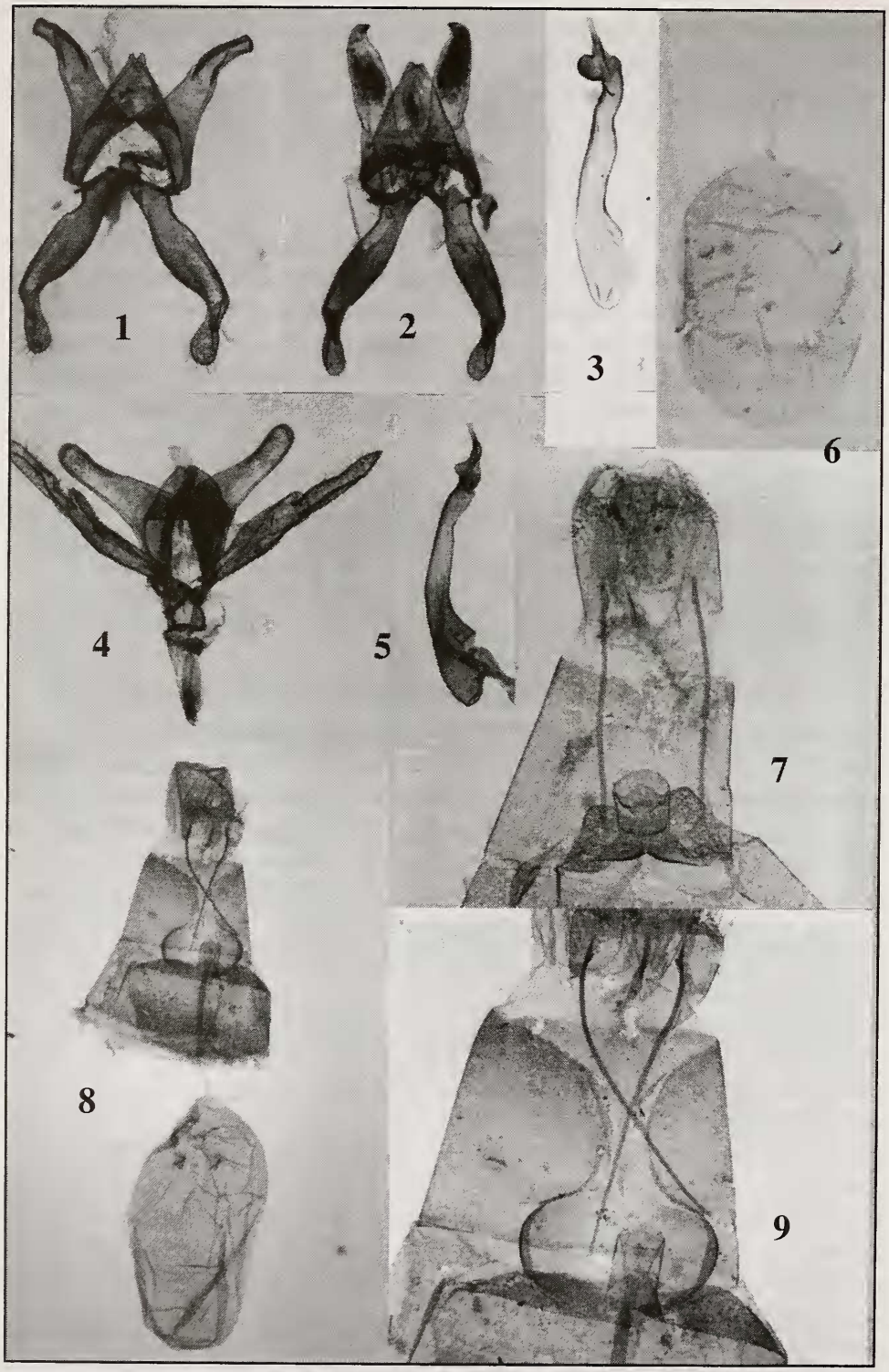

Fig. 1. *Crombrugghia laetus,* male. BM(NH) slide 10698; Fig. 2. *C. laetus,* male. BM(NH) slide 13571; Fig. 3. *C. laetus,* male, aedeagus. BM(NH) slide 13571; Fig. 4. *C. distans,* male. BM(NH) slide 17047; Fig. 5. *C. disans,* male, aedeagus. BM(NH) slide 17047; Fig. 6. *C. laetus,* female, bursa copulatrix. BM(NH) slide 13169; Fig. 7. *C. laetus,* female. BM(NH) slide 13169; Fig. 8. *C. distans,* female. BM(NH) slide 13587; Fig. 9. *C. distans,* female. BM(NH) slide 13587.

length of each bulge is about the same as its width; in *distans* the plate is shorter and much less curved, the length of each bulge is about one third of its width (Figs. 7 & 9). In a set specimen it is sometimes possible to see the genitalia sufficiently well to confirm identification without the necessity of making a genitalia mount. In the male the hooked tip to the tegumen and the short, rounded end of the valve confirm *laetus,* and in the female the shape of the tergite plate, which is completely external, is normally quite clear.

Crombrugghia laetus has long been confused with *C. distans.* In a relatively short search four misidentified *laetus* have been found which has increased the number of known British specimens by 50%. I am convinced that there are more specimens of this moth in collections up and down the country and I urge entomologists to check for this species now. Any specimen which appears to be *distans* but which has been caught near the south coast of England, or in a habitat not typical of *distans,* or at an unusual time of the year for *distans* should have its identity checked immediately.

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